

GUIDE FOR DESCRIBING MEANINGFUL DIFFERENCES IN OVERALL ACHIEVEMENT TEST RESULTS

In analyzing and describing achievement test results, the following questions often arise:

- How large a difference in scores from one year to the next is needed for it to be considered a meaningful difference or gain?
- How different are our reading scores from our math scores?
- How different is our 3rd grade reading score from our 5th grade reading score?

The “Guide for Describing Meaningful Differences” can help answer such questions. This user-friendly tool is based on a combination of research and its developer’s* many years of examining test results in school districts.

This tool offers general guidance on how to describe differences in the **percentages only** of norm-referenced and criterion-referenced achievement results, not in other types of scores such as percentiles and normal curve equivalent scores.

- Example: Describing differences in percentages of students at or above the 50th national percentile of a norm group on a norm-referenced test or the proficiency standard on a criterion-referenced test.
- Purposes: Comparing differences in the following situations:
 - between **grade levels** in a particular subject area (e.g., 7th and 8th grade reading);
 - between **subject areas** for all grades combined (e.g., reading and mathematics);
 - **across years** (e.g., 2005 to 2006 for all grades combined in reading).

Guide for Describing Meaningful Differences

| Descriptive Difference | Total Number of Students Being Compared | | | |
|------------------------|---|-------|-------|-------|
| | 50 | 100 | 200 | 500+ |
| | Percentage Points Difference | | | |
| None | 0-12 | 0-8 | 0-5 | 0-3 |
| Small | 13-15 | 9-11 | 6-7 | 4-5 |
| Moderate | 16-19 | 12-14 | 8-10 | 6-8 |
| Fairly Large | 20-25 | 15-17 | 11-13 | 9-10 |
| Large | 26-29 | 18-24 | 14-19 | 11-15 |
| Very Large | 30+ | 25+ | 20+ | 16+ |

* The “Guide for Describing Meaningful Differences” was developed by John Carr, WestEd, and is described in Carr, J., & Artman, E. (2002). *The bottom-up simple approach to school accountability* (pp. 253-256). Norwood, MA: Christopher Gordon Publishers. Copyright 2002 by Christopher Gordon Publishers. Used with permission.

How to Use the Guide

1. Determine the “Total Number of Students Being Compared.”
 - When comparing different groups of students, add the number of students in the groups.
 - When comparing the same group of students across years (as in a cohort analysis), use the group of lesser size, not the sum of both groups.
2. Calculate the difference in the percentages of students for both groups.
3. Locate the difference in the percentages of the two groups by using the appropriate “Total Number of Students Being Compared” column.
4. Look at the left-most column to identify the adjective that describes the difference (e.g., none, small, large).

Example 1 (norm-referenced test results)

In 2005, 48% of the 120 fifth graders scored at/above the 50th national percentile in math.

In 2006, 54% of the 100 fifth graders scored at/above the 50th national percentile in math.

- Total Number of Students Being Compared = **220**
- Difference in the percentages scoring at/above the 50th national percentile = **6 percentage points**
- Descriptive Difference = **Small**

Example 2 (criterion-referenced test results)

In 2004, 48% of the 120 seventh graders met and exceeded the proficiency standard in reading. In 2005, 54% of the 100 eighth graders met the proficiency standard in reading.

- Total Number of Students Being Compared = **100**
- Difference in the percentages of students who met the proficiency standard = **6 percentage points**
- Descriptive Difference = **None**

Cautions and Considerations

- **Mobility:** If your mobility rate is 25% or more, then consider using both methods described in step 1 to determine meaningful difference. See step 1 above under How to Use the Guide.
- **Current Year to Baseline Year:** You may want to compare the current year percentages with that of the baseline year (e.g., 2006 to 2004 third grade reading).

Moderate to Very Large Differences: Increases or decreases in achievement this large should be investigated to determine the reasons for such differences.